

- 11 -

CLAIMS

1. Quick-coupling device for tools (3) on machines, especially agricultural, transport, lifting, digging and earth-moving machines, said machines comprising an articulated arm (4) at the end of which an unmovable tool (3) is coupled, characterized in that it comprises:
- an adaptor (2) joined to said articulated arm (4) via at least one master pin (7) and, in one of its ends, made up of a base which is essentially flat (17) and side walls (10), said adaptor (2) also having fixing means (13), which move perpendicularly through said side walls (10); and
 - means of coupling (1) on the tool (3), which comprise of rigid hooks (5, 5', 6, 6') for receiving the ends of the master pin (7) and side walls (9) with perforations (8) for receiving and holding, by locking, the movable fixing means (13) of the adaptor (2),
- the outer surfaces (10') of the side walls (10) of the adaptor (2) and/or the inner surfaces (9') of the side walls (9) of the coupling means (1) having, at least partly, converging slopes suitable for gradually housing the adaptor (2) in the coupling means (1) of the tool (3), so that, in the coupling position, the base (17) of the adaptor (2) is in contact with a corresponding essentially flat-surfaced part of the tool (3), or coupling means (1), and the fixing means (13) is introduced in the perforations (8) of the side walls (9) of the tool (3).
2. Device according to claim 1, characterized in that the outer surface of the side walls (10) of the adaptor (2) have sloping guiding surfaces (10') around the protruding ends of at least one master pin (7, 7'), said surfaces being cone-shaped with an imaginary axis being coincident with the longitudinal axis of the master pin (7, 7').
3. Device according to claim 1, characterized in that the outer surfaces (10') of the side walls (10) of the adaptor (2) have, at least partly, slopes which converge in the direction of coupling of the adaptor (2) on the tool (3), insofar as the inner surfaces (9') of the side walls (9) of the coupling means (1) have, at least partly, converging slopes which match the slopes of the outer surfaces (10') of the adaptor (2), which produces a wedge or locking effect between the sloping surfaces of the adaptor and those of the coupling means in the coupling position.
4. Device according to the previous claims, characterized in that the coupling

- 12 -

means (1) of the tool (3) comprise four rigid hooks (5, 5', 6, 6') located on the four ends of the side walls (9) of the coupling means (1), positioned so that the master pin (7) can be coupled with both the pair of front hooks (5, 5') and with the pair of rear hooks (6, 6'), so that the tool (3) can be coupled and fixed to the adaptor (2) in two different positions, at an angle of 180° with respect to one another.

5. Device according to the previous claims, characterized in that there are two perforations (8) on each side wall (9), opposite each other, and equidistant from the hooks on the same wall (9) and axially aligned in the coupling position with the movable fixing means (13) through the side walls (10) of the adaptor (2), and the master pin (7) being coupled in the pair of front hooks (5, 5') or in the pair of rear hooks (6, 6'), due to the symmetrical positioning of the perforations (8), the movable fixing means (13) of the adaptor (2), upon moving, are introduced in the said perforations (8) of the coupling means (1) of the tool (3), the coupling means (2) and the tool (3) being joined in any of the possible coupling positions.

6. Device according to claim 5, characterized in that the perforations (8) of the side walls (10) of the tool (3) have a section which gets smaller towards the outside, which matches with another section which gets smaller towards the outside of the fixing means (13) to be housed inside of these during the coupling position.

7. Device according to the previous claims, characterized in that the coupling means (1) have in their front and rear parts means for housing the adaptor (2), which respectively have opposite sloping surfaces, and in that the end of the tool (2) opposite the master pin (7) has at least one matching chamfer with a sloping surface so that, in the coupling position, the chamfer or chamfers can rest, without any play, on the sloping surfaces of the housing means located on the front or rear part of the coupling means (1), depending on the coupling position.

8. Device according to the previous claims, characterized in that at least one fixing means (13) has a rod (16) whose free end is visible from the outside, so that it can be determined visually whether the fixing element (13) is housed inside the corresponding perforation (8).